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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,011	07/07/2003	Masahiko Hosokawa	392.1803	4508

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EXAMINER
SHECHTMAN, SEAN P

ART UNIT	PAPER NUMBER
2125	

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/613,011	HOSOKAWA ET AL.
	Examiner	Art Unit
	Sean P. Shechtman	2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2003*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-8 are presented for examination.

Priority

2.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers

have been placed of record in the file.

Specification

3.   The abstract of the disclosure is objected to because it is unclear what is being read as

taught in line 14.

        Correction is required. See MPEP § 608.01(b).

4.   The disclosure is objected to because of the following informalities:

        Referring to page 4, seventh paragraph, "battery 10", should be rephrased "battery 20".

        Referring to page 5, line 2, "controller 17", should be rephrased "controller 27".

        Appropriate correction is required.

5.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

Claim Objections

6.   Claim 2 is objected to because of the following informalities:

        Referring to claim 2, line 5, "the read input/output unit", should be rephrased "said first

input/output unit". Appropriate correction is required.

Claim Rejections - 35 USC § 112

        The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7.   Referring to claim 1, lines 3-5, it is unclear whether the additional information associated with the program block data is divided to obtain program block data or if the input/output units each include additional information associated with the program block data. For purposes of examination, it will be assumed that the input/output units each include additional information associated with the program block data.

8.   Referring to claim 1, lines 6-10, it is unclear whether one or all of the effective data length, the front input/output unit data, and/or the rear input/output unit data are "in a sequence of the machining program".

9.   Referring to claim 2, it is unclear what successively executes the program blocks included in the read input/output units.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10.   Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,298,006 to Miyajima in view of U.S. Pat. No. 6,088,624 to Khan or U.S. Pat. No. 5,640,559 to Silberbauer.

Referring to claim 1, Miyajima teaches a numerical controller for controlling a machine according to a machining program (Abstract), comprising:

a storage device or medium for storing input/output units (Fig. 3, element 100; Col. 4, lines 45-50) each including program block data (Fig. 3, elements P3-P5, programs 101, 102...) and additional information associated with the program block data (Fig. 3, elements P3-P5, start commands beginning with U and end commands beginning with V);

said program block data is obtained by dividing the machining program (See Fig. 3 below);

said additional information including front input/output unit data designating an input/output unit immediately preceding each input/output unit (Fig. 3, elements P3-P5, start commands beginning with U) and rear input/output unit data designating an input/output unit following each input/output unit (Fig. 3, elements P3-P5, start commands beginning with U and end commands beginning with V) in a sequence of the machining program (Col. 3, line 66 – Col. 4, line 9);

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                                                         ┌─100
┌─────────────────────────────────────────────────┐
│                                                   │
PI ──┤  G 9 8 X ─ Y ─ I ─ J ─ P 2 Q 2 ;            │
│                                                   │
P2 ──┤  U 9 0 ;                                     │
│   ┌─────────────────────────────────────────┐   │
│   │  U 0 1 ;                                  │   │
P3 ──┤  │  MACHINING   PROGRAM   101              │   │
│   │  V 0 1 ;                                  │   │
│   └─────────────────────────────────────────┘   │
│   ┌─────────────────────────────────────────┐   │
│   │  U 0 2 ;                                  │   │
P4 ──┤  │  MACHINING   PROGRAM   102              │   │
│   │  V 0 2 ;                                  │   │
│   └─────────────────────────────────────────┘   │
│   ┌─────────────────────────────────────────┐   │
│   │  U 0 3 ;                                  │   │
P5 ──┤  │  MACHINING   PROGRAM   103              │   │
│   │  V 0 3 ;                                  │   │
│   └─────────────────────────────────────────┘   │
│                                                   │
P6 ──┤   V 9 0 ;                                    │
│                                                   │
P7 ──┤   G 7 3 W 9 0 Q 1 ;                          │
└───────────────────────────────────────────────────┘
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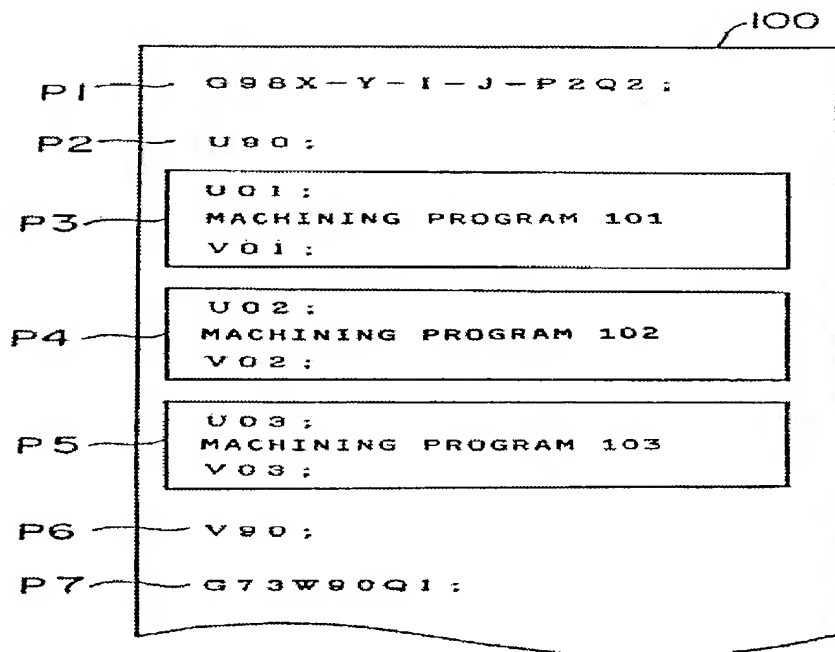
F I G . 3

a processor for processing the input/output units (Col. 2, lines 48-56); and

an interface for inputting/outputting the input/output units between said storage device or

medium and said processor (Col. 2, line 57-Col. 3, line 45).

Referring to claim 2, Miyajima teaches the controller above, wherein said processor reads

a first input/output unit including a program block corresponding to a beginning part of the

machining program and successively reads input/output units stored in said storage device or

medium according to rear input/output unit data in the read input/output unit through said

interface, successively executes the program blocks included in the read input/output units (Col.

6, lines 34-50).

Miyajima fails to teach that said additional information including an effective data length of the program block.

Examiner notes that independent claim 1 does not require that the effective data length be functionally used with respect to any other part of the claim.

However, referring to claim 1, Khan teaches analogous art (Col. 1, lines 18-57 of '624), wherein identifying data structures or its elements within a control program (Col. 2, lines 16-53 of '624) includes software that denotes the size of data of the data elements (Col. 8, lines 1-7 of '624).

However, referring to claim 1, Silberbauer teaches analogous art (Abstract of '559), wherein a system and method of encoding units of data (Title of '559) read from data storage (Col. 50, lines 43-54 of '559) includes encoding a length of the unit of data into a length field of a prefix for the data unit (Col. 50, lines 59-65; Col. 51, lines 1-2 of '559).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to combine the teachings of Khan or Silberbauer with the teachings of Miyajima.

One of ordinary skill in the art would have been motivated to combine these references because Khan teaches a method of coordinating memory assigned to both input/output devices of an industrial controller and variables of a control program (Col. 1, lines 13-17 of '624). Furthermore, Khan teaches the ability to adopt arbitrary data structures appropriate to a device, having arbitrary size and divided into arbitrary data types, wherein the invention allows selecting data structures for exchanging data with a centralized I/O table memory to identify data structures or elements within the control program (Col. 2, lines 17-53 of '624).

One of ordinary skill in the art would have been motivated to combine these references because Silberbauer teaches systems and methods for encoding, decoding, moving, and manipulating computerized data particularly relating to entities and relationships (Col. 1, lines 15-18 of '559). Furthermore, Silberbauer efficient ways to encode E/R data which can be transmitted between a programmable workstation and another computer (Col. 1, lines 22-46 of '559).

11.   Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,578,913 to Yasuda in view of U.S. Pat. No. 6,088,624 to Khan or U.S. Pat. No. 5,640,559 to Silberbauer.

Referring to claim 1, Yasuda teaches a numerical controller for controlling a machine according to a machining program (Abstract), comprising:

a storage device or medium for storing input/output units each including program block data and additional information associated with the program block data (Col. 13, lines 28-37);

said program block data is obtained by dividing the machining program (Col. 13, lines 24-27);

said additional information including front input/output unit data designating an input/output unit immediately preceding each input/output unit (Col. 13, lines 28-37) and rear input/output unit data designating an input/output unit following each input/output unit (Col. 13, lines 28-37) in a sequence of the machining program (Col. 13, lines 43-45);

a processor for processing the input/output units; and an interface for inputting/outputting

the input/output units between said storage device or medium and said processor (Col. 4, lines

30-53).

Referring to claim 2, Yasuda teaches the controller above, wherein said processor reads a

first input/output unit including a program block corresponding to a beginning part of the

machining program and successively reads input/output units stored in said storage device or

medium according to rear input/output unit data in the read input/output unit through said

interface, successively executes the program blocks included in the read input/output units

(Abstract; Col. 15, line 47 – Col. 16, line 2).

Yasuda fails to teach that said additional information including an effective data length of

the program block.

Examiner notes that independent claim 1 does not require that the effective data length be

functionally used with respect to any other part of the claim.

However, referring to claim 1, Khan teaches analogous art (Col. 1, lines 18-57 of '624),

wherein identifying data structures or its elements within a control program (Col. 2, lines 16-53

of '624) includes software that denotes the size of data of the data elements (Col. 8, lines 1-7 of

'624).

However, referring to claim 1, Silberbauer teaches analogous art (Abstract of '559),

wherein a system and method of encoding units of data (Title of '559) read from data storage

(Col. 50, lines 43-54 of '559) includes encoding a length of the unit of data into a length field of

a prefix for the data unit (Col. 50, lines 59-65; Col. 51, lines 1-2 of '559).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that

the invention was made to combine the teachings of Khan or Silberbauer with the teachings of

Yasuda.

One of ordinary skill in the art would have been motivated to combine these references

because Khan teaches a method of coordinating memory assigned to both input/output devices of

an industrial controller and variables of a control program (Col. 1, lines 13-17 of '624).

Furthermore, Khan teaches the ability to adopt arbitrary data structures appropriate to a device,

having arbitrary size and divided into arbitrary data types, wherein the invention allows selecting

data structures for exchanging data with a centralized I/O table memory to identify data

structures or elements within the control program (Col. 2, lines 17-53 of '624).

One of ordinary skill in the art would have been motivated to combine these references

because Silberbauer teaches systems and methods for encoding, decoding, moving, and

manipulating computerized data particularly relating to entities and relationships (Col. 1, lines

15-18 of '559). Furthermore, Silberbauer efficient ways to encode E/R data which can be

transmitted between a programmable workstation and another computer (Col. 1, lines 22-46 of

'559).

12.   Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No.

5,578,913 to Yasuda or U.S. Pat. No. 5,298,006 to Miyajima in view of U.S. Pat. No. 6,088,624

to Khan or U.S. Pat. No. 5,640,559 to Silberbauer, and further in view of U.S. Pat. No. 5,258,905

to Yamauchi.

Yasuda and Miyajima fail to teach the elements of claims 3-4.

However, referring to claim 3, Yamauchi teaches analogous art, wherein when a branch instruction is included in the program block of an input/output unit in execution, a processor reads input/output units preceding the input/output unit in execution using the front input/output unit data and reads input/output units following the input/output unit in execution using the rear input/output unit data to search a line designated by the branch instruction (Col. 6, lines 39-58 of '905).

Referring to claim 4, Yamauchi teaches information further includes data specifying an input/output unit including a line designated by a branch instruction, and when the branch instruction is included in the program block of the input/output unit in execution said processor reads the input/output unit specified by the data (Fig. 2b and Fig. 6; Col. 6, lines 39-58 of '905).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the teaching of Yasuda or Miyajima with the teachings of Yamauchi.

One of ordinary skill in the art would have been motivated to combine these references because Yamauchi teaches an expanded programmable machine controller which can independently carry out debugging, operations, and the like, while not connected to the main body programmable machine controller (Col. 1, lines 7-14 of '905).

13.   Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,578,913 to Yasuda or U.S. Pat. No. 5,298,006 to Miyajima in view of U.S. Pat. No. 6,088,624

to Khan or U.S. Pat. No. 5,640,559 to Silberbauer, and further in view of U.S. Pat. No. 5,237,665 to Seki.

Miyajima teaches a machine program editing (Col. 2, line 64 – Col. 3, line 4 of '006).

Yasuda and Miyajima fail to teach the elements of claims 5-8.

However, referring to claim 5, Seki teaches analogous art, wherein a processor reads only an input/output unit or input/output units to be edited from a storage device or medium through an interface (Col. 4, lines 25-43 of '665).

Referring to claim 6, Seki teaches said processor reads only an input/output unit to be edited and modifies a program block and an effective data length included in the read input/output unit (Abstract of '665).

Referring to claim 7, Seki teaches said processor deletes an input/output unit by changing rear input/output unit data of an input/output unit designated by front input/output unit data of the input/output unit to be deleted to rear input/output unit data of the input/output unit to be deleted, and changing front input/output unit data of an input/output unit designated by rear input/output data of the input/output unit to be deleted to the front input/output data of the input/output unit to be deleted (Col. 1, lines 15-29 of '665).

Referring to claim 8, Seki teaches said processor adds a new input/output unit including program block data and additional information and changes rear input/output unit data of an input/output unit designated by front input/output data of the input/output unit to be added to data specifying the input/output unit to be added, and changes front input/output unit data of an

input/output unit designated by the rear input/output data of the input/output unit to be added to data specifying the input/output unit to be added (Col. 1, lines 15-29 of '665).

Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to further modify the teaching of Yasuda or Miyajima with the teachings of Seki.

One of ordinary skill in the art would have been motivated to combine these references because Seki teaches a method of outputting an entered NC program upon subjecting the NC program to predetermined editing processing (Col. 1, lines 15-29 of '665). Furthermore, Seki teaches an NC program output method that can have any starting character string and can be outputted by a simple operation (Col. 2, lines 3-17 of '665).

Conclusion

14.   The prior art or art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents or publications are cited to further show the state of the art with respect to the term effective data length.

U.S. Pat. No. 5,850,343 to Nakamura (See Fig. 5).

15.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean P. Shechtman whose telephone number is (703) 305-7798. The examiner can normally be reached on 9:30am-6:00pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (703) 308-0538. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
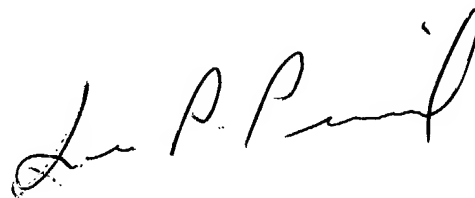
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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SPS

Sean P. Shechtman

June 10, 2004

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